

Fall 2014

Fall 2014

NSU Oceanographic Center

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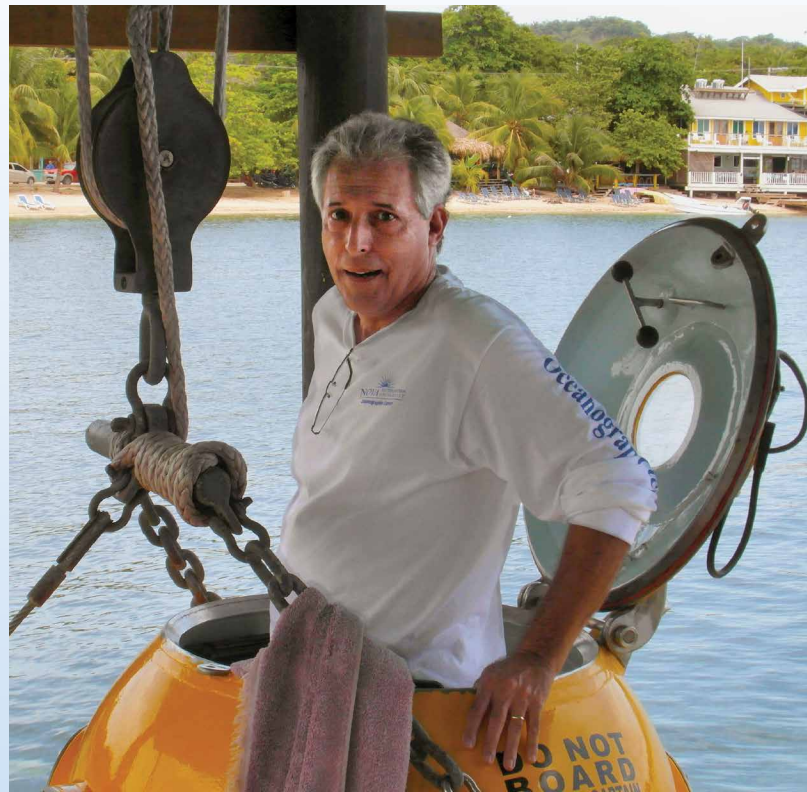
Currents

A NEWSLETTER FROM NOVA SOUTHEASTERN UNIVERSITY'S OCEANOGRAPHIC CENTER

Deep Sea Researcher Studies Ancient Marine Animals


Deep-water tropical rocky seafloors are among the least studied habitats in the ocean. This spring, **Charles Messing**, Ph.D., professor at the Oceanographic Center, completed his third trip to Roatan, Honduras, home of the Roatan Institute of Deep-Sea Exploration. During his trip, he made multiple dives to depths reaching 2,000 feet using the submersible *Idabel* to study the ecology of crinoids—sea lilies and feather stars. Although their common names may evoke botanical imagery, crinoids are, in fact, animals in the phylum Echinodermata, which also includes sea stars and sea urchins. The common name sea lily refers to crinoids, such as *Cenocrinus asterius*, which anchor to the seafloor via a stalk. Feather stars do not have a stalk.

Crinoids have a vast and important fossil record. Only about 640 crinoid species exist in modern seas, but they were much more abundant and diverse in the past. Some vast deposits of Paleozoic limestones consist chiefly of crinoid skeletal fragments. Messing studies these “living fossils” to learn more about life and evolution in ancient seas.

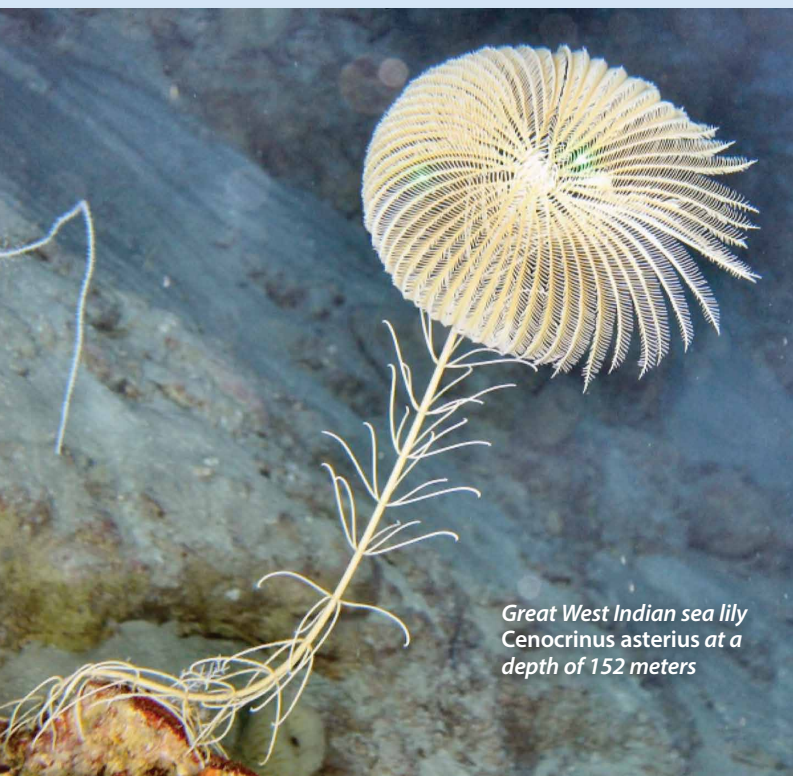


Charles Messing, Ph.D., OC professor, boarding the submersible *Idabel*

With annual access to the three-person submersible, Messing and his collaborators—Tom Baumiller, Ph.D., from the University of Michigan, and Forest Galn, Ph.D., from Brigham Young University—are able to revisit the same location and study the same individual crinoids on an annual basis. This allows the researchers to gain insight into crinoid growth and population dynamics.

This research was funded, in part, by *National Geographic* and Nova Southeastern University. In July 2013, a production crew from public broadcasting station WPBT2 in Miami, led by producer Alexa Elliott, accompanied the researchers to Roatan. There, they shot an episode of their long-running series *Changing Seas*. The episode, “Living Fossils,” aired on WPBT2 in June 2014 and can be viewed online at <http://video.wpb2.org/video/>. 

(more photos on page 2)

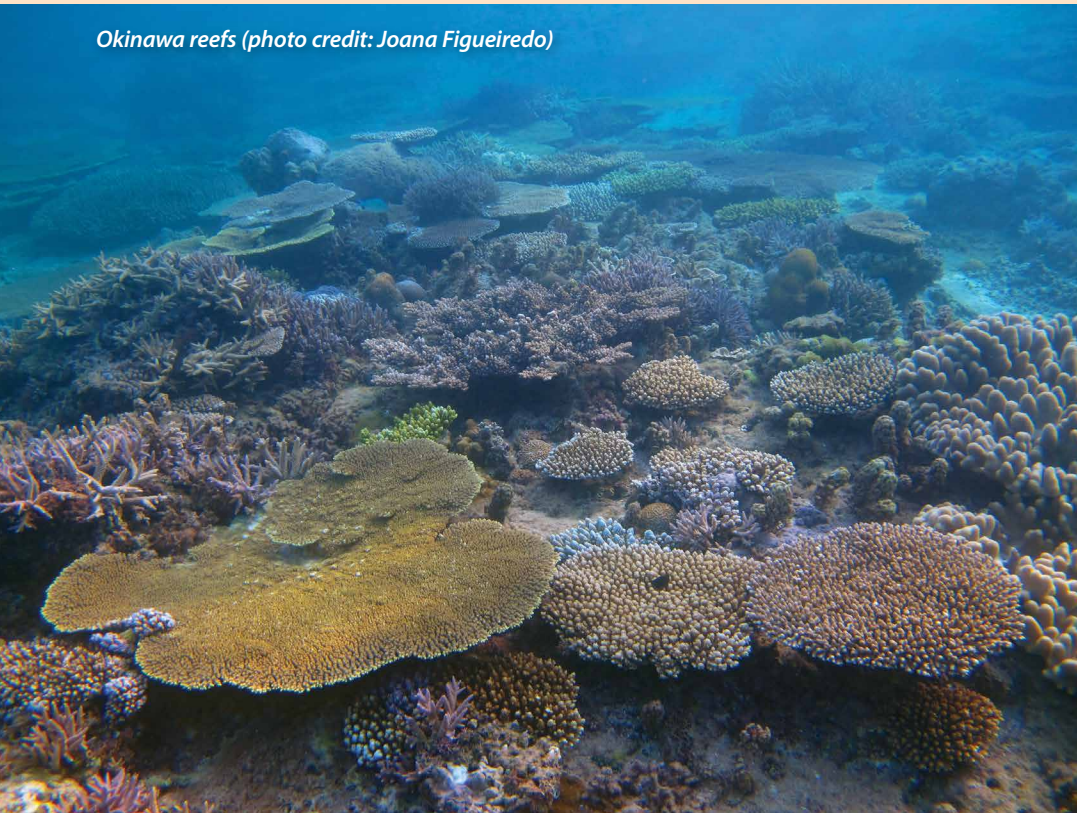


Great West Indian sea lily
Cenocrinus asterius at a
depth of 152 meters

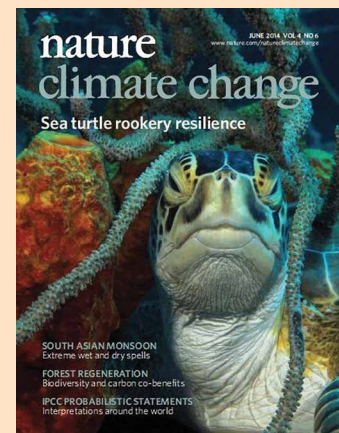
OC Faculty Member Published in *Nature Climate Change*

The newest member of the OC faculty, **Joana Figueiredo**, Ph.D., assistant professor, recently published a paper, "Increased Local Retention of Reef Coral Larvae as a Result of Ocean Warming," in the journal *Nature Climate Change* (Issue 4, pages 498–502, 2014). The study has important implications for coral reefs in a changing climate world. *Nature Climate Change* is ranked number one in environmental sciences impact factors. The article can be accessed online at <http://tinyurl.com/figueiredo2014ncc>. 🐟

Okinawa reefs (photo credit: Joana Figueiredo)



Joana Figueiredo, Ph.D., OC assistant professor



Deep Sea Researcher Studies Ancient Marine Animals (continued from page 1)



Numerous sea lilies (*Holopus rangii*) are seen under an overhanging ledge at a depth of about 390 meters. The stump of a dead *Holopus* (arrow) and a few *Cyathidium pourtales*, its tiny dark relative, are also visible.



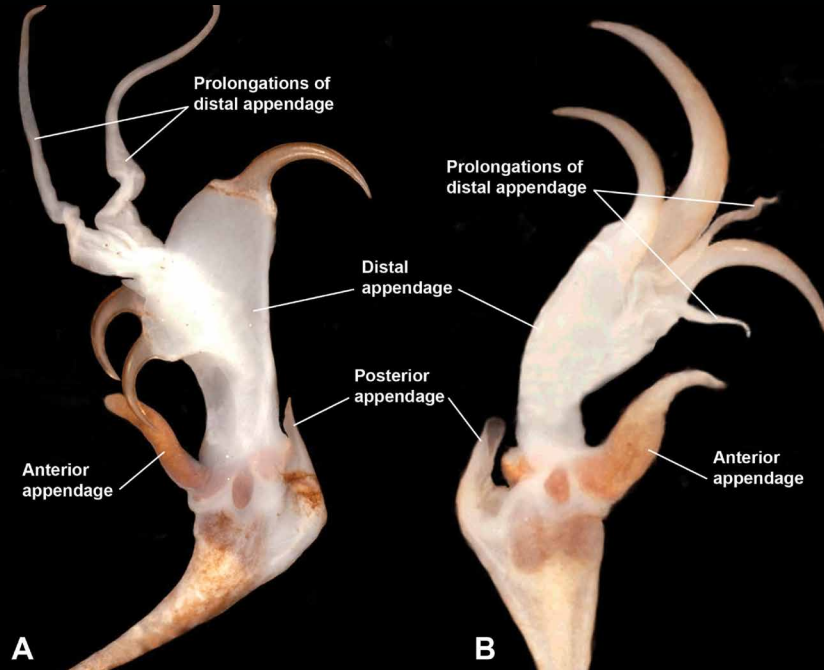
Collecting a juvenile *Holopus* with the submersible Idabel's simple net

Researchers Identify New Fish Species

A new species of deep-sea anglerfish was discovered and identified by **Tracey Sutton**, Ph.D., OC associate professor, and Ted Pietsch, Ph.D., from the University of Washington. They have named the new species *Lasiognathus dinema* and have drafted a formal description that will be submitted to the journal *Copeia*. 🐟



Lasiognathus dinema



A

B

Detail from *Lasiognathus dinema*

OC Faculty Member Participates in Philippines Marine Biodiversity Expedition

OC professor **James Thomas**, Ph.D., participated in the 2014 Verde Island Passage Expedition to the Philippines. A National Science Foundation grant to the California Academy of Sciences funded the expedition. The expedition lasted seven weeks and included sample sites on each side of the deep Cape Verde passage, which is suspected to be a significant biogeographic barrier.

More than 165 sites were sampled in the Mabini/Tingloy, Calatagan, and Lubang regions. During the Mabini part of the expedition, Thomas discovered two new species of commensal amphipod crustaceans that are quite different from other known Pacific species. The Mabini part of the trip's dive boats—called bankas—are locally crafted vessels adapted to local conditions. Hewn from a single large log with bamboo outriggers, they are powered by four-cylinder Toyota car engines, complete with clutch and stick shift. 🚤



Banka dive boat in the Philippines

Professor Edits Journal's Special Issue

This April, **Bernhard Riegl**, Ph.D., OC professor, together with Georgios Tsounis, Ph.D., of the Center for Marine Tropical Ecology in Bremen, edited a special issue on coral reef sustainability and its challenges in the Elsevier journal *Current Opinions in Environmental Sustainability*. Twenty review articles examined issues ranging from socioeconomic factors of degradation to evolutionary change and biological adaptability. 🐠



One of the new species of commensal amphipods discovered living inside the tunicate *Polycarpa aurata*.

Broward County Sea Turtle Nests Reach Record Level in 25 Years

Since the middle of July, Broward County has had almost 2,300 sea turtles nest on its beaches. This is the second highest count in the last 25 years. The Oceanographic Center administers the Broward County Sea Turtle Conservation Program, which monitors 26 miles of beaches in Broward County for nesting activity daily from March 1 to October 30 of each year. Its mission is to document and mark every sea turtle nest laid throughout the season and document all false crawls, which is when the mother turtle has crawled up on the beach, but for some reason not made a nest. All nests laid

below the high tide line are relocated to protect them from being washed away on the next tide.

The sea turtle program conducts public hatchling releases in conjunction with the Anne Kolb Nature Center every Wednesday and Friday in July and August. For more information about these events, contact the Anne Kolb Nature Center at (954) 357-5161 or email them at WestLakePark@Broward.org. The sea turtle program is now under the leadership of Derek Burkholder, Ph.D., principal investigator; Curtis Slagle, project manager; and Jessica Novy, assistant project manager. 🐢



Jessica Novy, M.S. student, helps relocate a sea turtle nest from a Fort Lauderdale beach opposite the OC Campus.



Loggerhead sea turtles hatching

Coral Nursery Students, Faculty and Staff Members Start Fund-Raising Initiative

This year, OC students and faculty and staff members started the NSU Coral Nursery Initiative. The goal is to raise money and educate the public about the OC's two coral nursery projects—land based and offshore—and current efforts to restore local reefs. In June, initiative participants attended the Florida Frag Swap, an event put on by local reef aquarium hobbyists so they can trade or sell aquacultured corals and fish.



OC M.S. students Ian Rodericks and Ari Halperin at the Florida Frag Swap



Transplanted staghorn corals in Broward County (photo credit: Kirk Kilfoyle)

The project is also using a fund-raising Web site to raise funds to support saving staghorn corals. Staghorn coral, a keystone reef species, is a threatened species at risk of becoming extinct. Information about the fund-raiser, including ways to support this worthwhile project, can be found by visiting www.indiegogo.com. 🐢

Two OC Labs Host Summer Interns

This summer, OC faculty members hosted undergraduate interns in their labs. **Tracey Sutton**, Ph.D., associate professor, hosted interns from St. Thomas University. Sutton's interns worked on sorting and analyzing deep-sea samples. **Jose Lopez**, Ph.D., professor, hosted other interns from St. Thomas, as well as well as from Broward College/ Centers for Ocean Sciences Education Excellence Research Experience for Pre-Teachers (COSEE-REPT). REPT provides beginner teachers with hands-on experience in local research labs. Both groups in Lopez's lab worked on the Earth Microbiome Project. This project is a systematic attempt to characterize the global microbial taxonomic and functional diversity of microbial communities across the globe. 🐟



Above: OC professor Jose Lopez, Ph.D., (second from left) with Broward College/ COSEE-REPT interns Ashley Cordova (left) and Reneice Robinson and Broward College intern Juan Ospina presented at the 2014 COSEE Science Symposium.

Left: St. Thomas University interns Stephanie Napoleon and DJ Jolicoeur, right, sort samples.

Fogarty Elected At-Large Member of Benthic Ecology Board

The Benthic Ecology Meeting (BEM) elected **Nicole Fogarty**, Ph.D., OC assistant professor, as an at-large member of the Benthic Ecology Meeting Society Board. BEM is one of the largest scientific meetings for marine biologists in the United States with approximately 600 participants attending every year. The BEM mission is to promote research in benthic ecosystems, support the exchange of information about benthic ecology, and foster the next generation of benthic ecologists through student participation. The 2015 Benthic Ecology Meeting will be held in Quebec City, Canada. 🐟



Nicole Fogarty, Ph.D., assistant professor



The Center of Excellence for Coral Reef Ecosystems Research

OC's Newest Building Receives Award

EDC magazine awarded the OC's Center of Excellence for Coral Reef Ecosystems Research building first runner-up in their 2014 Excellence in Design Awards, an annual nationwide competition. The center was featured in their May edition. This environmentally friendly, 86,000-square-foot facility is a silver LEED, state-of-the-art research building that includes a seawater system and experimental complex for pollution evaluation. 🐟

Computational Molecular Biology Certificate Offered

Starting in fall 2014, NSU's OC and the Graduate School of Computer and Information Sciences are offering a Computational Molecular Biology Certificate. This graduate-level, four-course certificate intends to assist students' entry into the genomics industry and workforce, which is projected to grow. The certificate will provide a solid foundation to both genomics and computer science fields; introduce bioinformatics theory, resources, and databases; and enable a gateway to more advanced studies in computational molecular biology. It is available both online and on campus. For more information, contact ocadmissions@nova.edu. 🐟



Jonathan Lanzas, M.S. student, assists COSEE intern Reneice Robinson with a genomics database.

Ph.D. Candidates Assist New Television Show

Environmental advocate Philippe Cousteau, Jr., grandson of legendary undersea explorer and television pioneer Jacques Cousteau, visited the Oceanographic Center on May 21, 2014, to tour the Center of Excellence for Coral Reef Ecosystems Research as part of a science, technology, engineering, and math (STEM) educational television series. He interviewed Ph.D. candidates **Abigail Renegar, M.S.**, and **Elizabeth Larson, M.S.**, about their research. Cousteau is the host and executive producer of Fox television's syndicated series *Xploration Awesome Planet*, which aired its first episode in September. 🐟



Brandon Hensler, NSU interim executive director of university relations, OC Ph.D. candidate Abigail Renegar, and Philippe Cousteau

Peer Mentor Outreach Continues

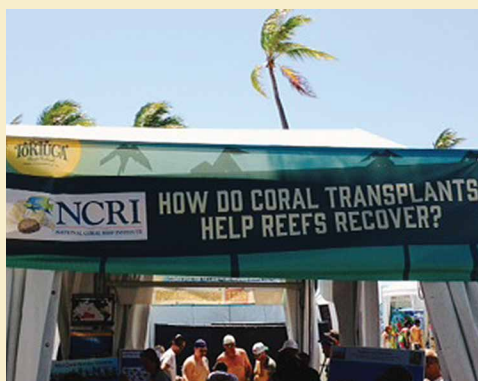
This July, **Joyce Varela**, OC M.S. student and Title V administrative assistant, participated in a Youth Co-Op Summer Enrichment Program held for refugee youth in the Broward County community. Students enjoyed learning about various marine organisms and participated in hands-on learning with a variety of marine specimens, including a polka-dot batfish, sand tiger shark, scrawled cowfish, corals, and sponges. In addition, students learned about marine conservation and career paths in marine science. 🐟



M.S. student Joyce Varela (top, left) with Youth Co-Op Summer Enrichment Program students

OC Hosts Booths at Music Festival

Pairing with the Rock the Ocean Foundation, this festival brings like-minded fans together for a beach weekend experience that pairs music with meaning to raise awareness for marine conservation and to support scientific research, education, and ocean conservation initiatives. The NSU booths were part of the Guy Harvey Conservation Village. Many OC students and staff members enjoyed the music while educating the public about shark finning, lionfish invasion, degradation of habitats, loss of coral reefs, and seafood fraud, as well as the overfishing of key species, such as the bluefin tuna. 🐟



Held on Fort Lauderdale Beach, the Tortuga Music Festival is a multiday, multistage festival featuring some of the biggest names in country, rock, and roots music.



M.S. student Max Appelman helps set up NSU's booths at the Tortuga Music Festival.

Broward County High School Students Attend OSTEM Summer Camp at the OC

This summer, 20 students from the Broward County Marine Magnate program attended a two-week summer camp focusing on oceanography science, technology, engineering, and mathematics (OSTEM). Working in conjunction with the School Board of Broward County, NSU faculty and staff members and students enhanced the camp with demonstrations and examples of their own research at the OC and the Farquhar College of Arts and Sciences.

Students considered two of the best parts of the camp to be the videoconference with the pilots of the *E/V Nautilus*, which was working in the Gulf of Mexico, and the shark-tagging trip in Broward County. **Charles Messing**, Ph.D., OC professor, organized the videoconference and allowed students to interact with the pilot and science communication fellow of the Nautilus Project. The shark-tagging trip, sponsored in part by the Marine Industries Association of South Florida, allowed the students to work with researchers to tag and sample four sharks, three sandbar sharks (*Carcharhinus plumbeus*), and one nurse shark (*Ginglymostoma cirratum*). The small samples were taken for genetic and isotopic studies. 🐟



OSTEM campers return from a daylong shark-tagging trip with a fins up!



OSTEM Summer Camp students toured the Oceanographic Center's Center of Excellence for Coral Reef Ecosystems Research building.



OSTEM camper Emily Hall helps tag a sandbar shark, *Carcharhinus plumbeus*.

Marine Industries Association of South Florida Supports OC Students

On June 11, the OC hosted the Marine Industries Day Round Table sponsored by the Marine Industries Association of South Florida (MIASF). The moderator was Philip Purcell, executive director of MIASF. There were two panel discussions, beginning with a talk on the economy. Panelists discussed the growth of one of the region's leading industries. The second topic was the significance of training programs and institutions dedicated to educating those who want to work in the booming marine industry. During the press conference, MIASF awarded three scholarships to OC students to assist on funding their research projects. The scholarships were awarded after a stiff competition within the Oceanographic Center.



M.S. student Jesse Secord and visitors at Marine Day

The winners were M.S. students.

- Charles Gandia for "The Future of Shallow Reefs May Lie Deeper Than Expected," supervisor: Nicole Fogarty, Ph.D., assistant professor
- Heather Schaneen for "Coral Persistence to Ocean Warming: Phenotypic Plasticity and Symbiont Selection," supervisor: Joana Figueiredo, Ph.D., assistant professor
- Jesse Secord for "Feeding Ecology of the Invasive Lionfish in Comparison with Two Native Reef Species," supervisor: David Kerstetter, Ph.D., assistant professor

The following Saturday, Oceanographic Center students and staff members participated in the Marine Industries Day in downtown Fort Lauderdale. The afternoon event allowed more than 1,500 people to see the various marine business and educational opportunities found in Broward County. The OC booth included marine science games, representative marine life, and a live lionfish display. 🐠



Left to right: Al Stiles, MIASF member; Jesse Secord, M.S. student; Charles Gandia, M.S. student; David Kerstetter, Ph.D., assistant professor; Philip Purcell, MIASF executive director; Nicole Fogarty, Ph.D., assistant professor; Joana Figueiredo, Ph.D., assistant professor; and Heather Schaneen, M.S. student

Forman Sons Visit OC, Replicate Photo of Dedication

In May—44 years after the Forman Building dedication—Austin and Collins Forman, sons of Broward pioneer Hamilton Forman, visited the Oceanographic Center and the Forman Building. With **Richard Dodge**, Ph.D., OC dean, they replicated the photo of their father with their uncle, Charles Forman, when the current Oceanographic Center campus was dedicated in 1970. Established in 1966, the OC was one of the first school divisions of what was then known as Nova University of Advanced Technology and whose president was Abraham S. Fischler. The initial OC was situated on a large houseboat docked on 15th street in Fort Lauderdale. 🐠



Richard Dodge, OC dean (center), with Austin (left) and Collins Forman



Abraham Fischler (center) with Hamilton (left) and Charles Forman in 1970

International Oil Spill Conference 2014

Prevent • Prepare • Respond • Restore

Savannah, Georgia, USA | May 5-8



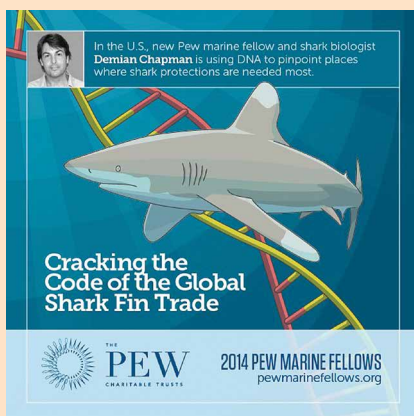
Ph.D. Student Receives Scholarship for Oil Spill Conference

Ph.D. candidate **Abigail Renegar**, M.S., received a full scholarship to attend the 2014 International Oil Spill Conference (IOSC) that was held May 5–8, 2014, in Savannah, Georgia. As part of the scholarship, she also attended a preconference short course on environmental tradeoffs focusing on protected species, including corals

and coral reefs. IOSC is part of a triennial series of events that provide a forum for oil spill response professionals, government agencies, researchers, and industry to exchange knowledge and ideas on oil spill prevention, response, and restoration. 🐟

OC Alumnus Awarded 2014 Pew Fellowship in Marine Conservation

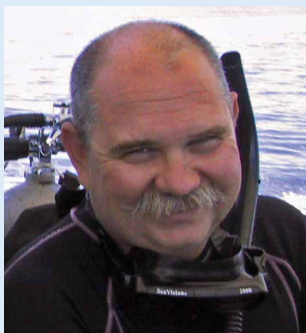
NSU OC alumnus **Damian Chapman** (M.S. 2004, Ph.D. 2007), assistant professor at the School of Marine and Atmospheric Sciences and assistant director for science at the Institute for Ocean Conservation Science at Stony Brook University, was recently awarded the 2014 Pew Fellowship in Marine Conservation. This prestigious international fellowship is given to five individuals each year. Applications are by appointment only, and a panel of prominent international experts selects the award winners. As a Pew fellow, Chapman's new research project will focus on how recently enacted international regulations affect trade in the fins of protected shark species. The project will identify regions where more effort is needed to enforce protections for sharks listed under the Convention on the International Trade of Endangered Species. For more information, visit www.pewtrusts.org. 🐟



Damian Chapman, Ph.D., OC alumnus, with a silky shark (Carcharhinus falciformis) in the Bahamas

Alumnus Author Donates Book to OC Library

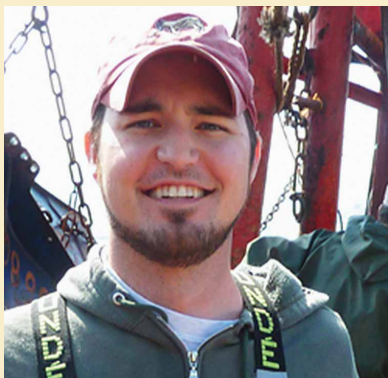
This summer, OC alumnus and author **Alex Brylske**, Ph.D., donated his book, *The Complete Diver: The History, Science, and Practice of SCUBA Diving*, to the Oceanographic Center's library. *The Complete Diver* includes chapters devoted to diving history, physics and physiology, diving medicine, health and safety practices for scuba divers, decompression theory, how to avoid the bends, diving techniques, and the future of diving. Brylske is a professor of marine science at Florida Keys Community College in Key West, Florida. 🐟



OC alumnus
Alex Brylske
(Ph.D., 1997)

Alumnus Working in Belgium Fisheries

OC alumnus **Shannon Bayse**, M.S., has recently taken a position as fisheries researcher at the Institute for Agricultural and Fisheries Research (ILVO) in Oostende, Belgium. The job will focus on bycatch reduction within the Flemish beam trawl fishery. While at NSU, Bayse worked to develop bycatch reduction techniques within the local pelagic longline fishery. This experience opened up similar opportunities at the University of Massachusetts's School for Marine Science and Technology. Bayse is completing his Ph.D., which focuses on bycatch reduction in New England small-mesh otter trawls. 🐟



OC alumnus
Shannon Bayse
(M.S. 2009)

OC Faculty Members, Researchers, and Students Win Eight President's Faculty Research and Development Grants

The following Oceanographic Center faculty members, researchers, and students were awarded grants from the 14th annual President's Faculty Research and Development Grants program. Created in 1999, the grants are designed to bring recognition and funding to the university's faculty members as they attempt to secure resources in support of research activities. The program is proactive in terms of providing impetus and direction toward research activities and, in turn, receives a considerable level of attention by the university's administration. Congratulations to our winners!

"Reduce Local Stressors to Potentially Increase Coral Resilience to Climate Change"

Joana Figueiredo, Ph.D., OC Assistant Professor

Francesca Fournay, B.S., OC M.S. Student

"Coral Persistence to Ocean Warming: Phenotypic Plasticity and Symbiont Selection"

Joana Figueiredo, Ph.D., OC Assistant Professor

Heather Schaneen, B.S., OC M.S. Student

"When Physical Form and DNA Collide: Resolving the Evolutionary Tree of Crinoidea"

Charles Messing, Ph.D., OC Professor

Kirstian Taylor, M.S., OC Ph.D. Candidate

"How Does Colony Size and Density Influence Paternity in a Brooding Coral?"

Nicole Fogarty, Ph.D., OC Assistant Professor

Charlie Gandia, B.S., OC M.S. Student

Hunter Noren, B.S., OC M.S. Student

"Port Everglades Inlet Microbiome Analysis Using High-Throughput DNA Sequencing"

Jose Lopez, Ph.D., OC Professor

Jay Fleisher, Ph.D., Health Professions Division Faculty Member

Lauren O'Connell, B.S., OC M.S. Student

"Reproductive Behavior of Nursery Reared Staghorn Coral: Documenting Outplant Success"

David Gilliam, Ph.D., OC Assistant Professor

Nicole Fogarty, Ph.D., OC Assistant Professor

Kathryn B. Correia, B.S., OC M.S. Student

Elizabeth Larson, M.S., OC Ph.D. Candidate

"Assessing Seabirds of South Florida for Marine Environmental Contaminants"

David Kerstetter, Ph.D., OC Assistant Professor

Jonathan Schulte, B.S., OC M.S. Student

"Developing the Common Reef Sponge to Study the Only Non-Neural Animal Eye"

Jose Lopez, Ph.D., OC Professor 🐟

Title V PPOHA Awards Three Fellowships

The guidelines of the \$2.8-million Title V grant to the Oceanographic Center through the federal Department of Education Promoting Postbaccalaureate Opportunities for Hispanic Americans (PPOHA) program specify the development of a flexible, supportive, and effective academic and career pathway as students with bachelor's degrees efficiently transition into graduate degrees. Part of the fellowship is to assist with the OC Peer Mentor Program.

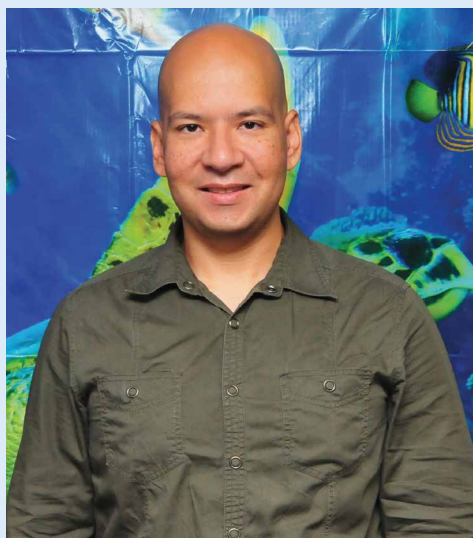
This spring, the grant awarded three more fellowships. These went to OC M.S. students **Jazmin Garcia**, **Valerie Miranda**, and **Luis Ramirez**. 🐟



M.S. student Jazmin Garcia



M.S. student Valerie Miranda



M.S. student Luis Ramirez

Forman Endowment Scholarship Awarded

This spring, **Alyson Kuba**, M.S. OC student, was awarded the Forman Scholarship, made possible by a scholarship endowment set up many years ago by Charles Forman and the Forman Family Foundation. This two-year scholarship will allow Kuba to pursue a research project studying the impacts of bleaching events on coral larvae with **Joana Figueiredo**, Ph.D., assistant professor at the OC. 🐟



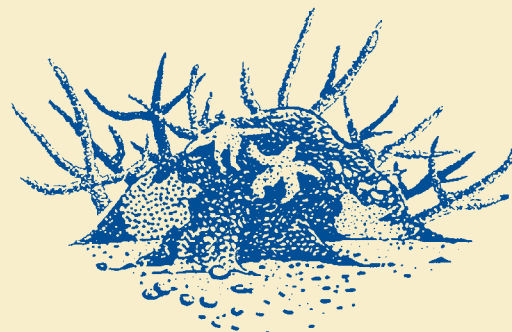
M.S. student Alyson Kuba

OC Graduates Two Ph.D. Candidates

In the second half of the 2013–2014 academic year, the Oceanographic Center had two of its Ph.D. candidates successfully defend their dissertations. These were

Andia Chaves Fonnegra: "Increase of excavating sponges on Caribbean coral reefs: reproduction, dispersal, and coral deterioration." Committee: J. V. Lopez, Ph.D., chair; Mahmood Shivji, Ph.D.; Bernhard Reigl, Ph.D.; and Sven Zea, Ph.D. Dissertation. March 25, 2014.

Christine Testerman: "Molecular ecology of globally distributed sharks." Committee: Mahmood Shivji, Ph.D., chair; Jose Lopez, Ph.D.; David Gilliam, Ph.D.; and George Duncan, Ph.D. Dissertation. April 18, 2014. 🐟



Researchers Observe Coral Spawning Event

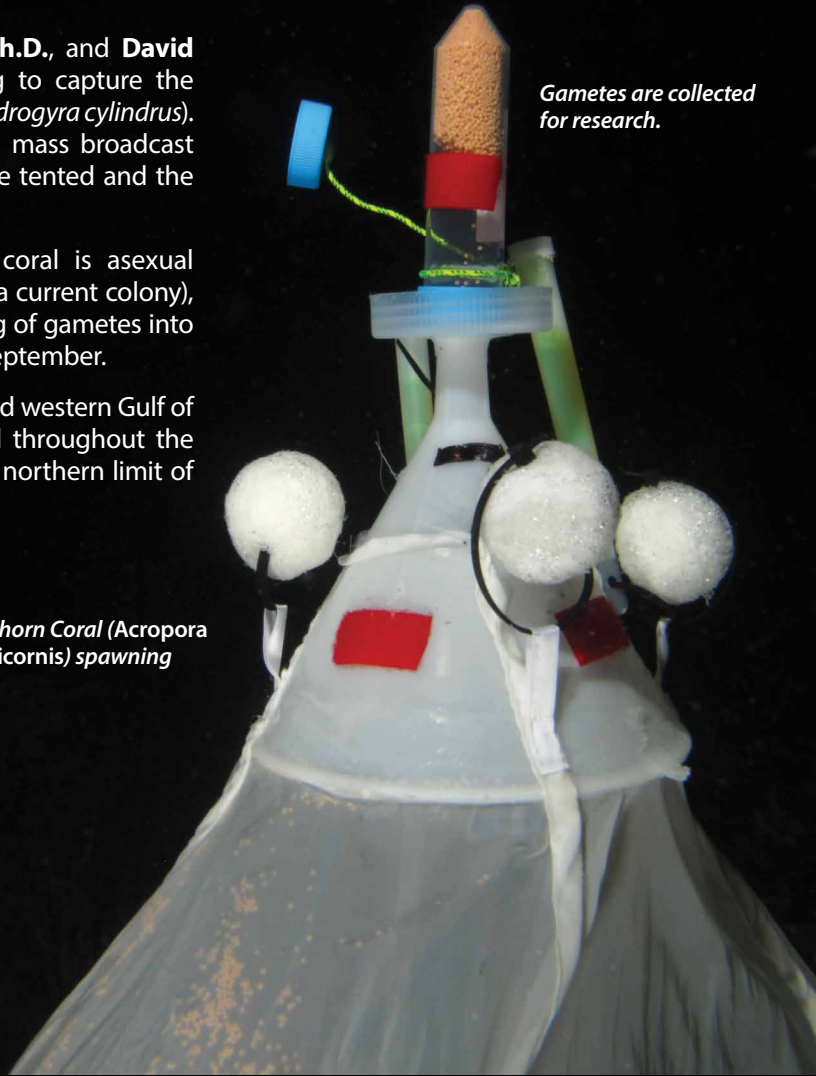
This August, students and researchers of **Nicole Fogarty, Ph.D.**, and **David Gilliam, Ph.D.**, spent five nights after the full moon trying to capture the spawning of staghorn (*Acropora cervicornis*) and pillar coral (*Dendrogyra cylindrus*). On the last day, they were able to observe and document a mass broadcast spawning of the staghorn coral. Monitored coral colonies were tented and the gametes were collected for research.

While the dominant mode of reproduction for staghorn coral is asexual fragmentation (when new colonies form by breaking off from a current colony), sexual reproduction occurs once a year via broadcast spawning of gametes into the water column. In south Florida, this occurs in August and September.

Staghorn coral is found in the Atlantic Ocean, Caribbean Sea, and western Gulf of Mexico (non-U.S. waters). Specifically, staghorn coral is found throughout the Florida Keys, the Bahamas, the Caribbean, and Venezuela. The northern limit of staghorn coral is around Boca Raton. 🐠



Staghorn Coral (*Acropora cervicornis*) spawning



Gametes are collected for research.

Join the Oceanographic Center on Twitter and Instagram!

View photos and keep up with our activities at the OC by following us on Twitter @NSUOC or on Instagram at <http://instagram.com/nsuoc>.



M.S. student Ari Halperin tents a coral colony.

NSU Oceanographic Center Hosting Open House November 15th

The Oceanographic Center will be hosting an open house on Saturday, November 15, from 9:00 a.m. to 2:00 p.m. This is a great way for potential students to meet other students and faculty and staff members. If you are interested in attending, RSVP to nsuocopenhouse@nova.edu. 🐟



2014–2015 OC Peer Mentors

New Student Orientation Launches 2014–2015 Academic Year

On August 23, the Oceanographic Center welcomed its 2014–2015 incoming class with an all-day orientation ending with a meeting of new students and their interim faculty advisers. Orientation included information about financial aid, career counseling, the NSU RecPlex, and the AAUS scientific dive program. The NSU-OC Peer Mentors created ice breakers and a wonderful series of “name that marine movie” skits.

The first week of classes included a welcome week schedule of events. During this week, incoming students could tour the NSU main campus, get a sneak peek at current OC students’ research projects, take a snorkeling trip, and attend a “munch and mingle” with OC faculty and staff members. 🐟



Faculty members meet their interim advisees in the cafe.



M.S. Student and Peer Mentor Katie Correia welcomes incoming M.S. student Reggie Williams to Orientation.



Peer mentors meet with their incoming students over lunch on the balcony.

Recent M.S. Graduate Student Defenses

The following graduate degree defenses have taken place during the second half of the academic year 2013–2014.

Aarin Conrad Allen: "Diet of the Antillean manatee (*Trichechus manatus manatus*) in Belize." Committee: James Thomas, Ph.D., chair; Curtis M. Burney, Ph.D.; Robert Bonde, Ph.D.; and Cathy Beck, Ph.D. Thesis. April 29, 2014.

Kimberly Atwater-Finnegan: "A mitogenomics view of the genetic status and population history of the basking shark, *Cetorhinus maximus*." Committee: Mahmood Shivji, Ph.D., chair; J. V. Lopez, Ph.D.; and George Duncan, Ph.D. Thesis. July 22, 2014.

Cornelius Benjamin: "The lethal and sublethal effects of anthropogenic inputs, such as PAH's, PCB's and heavy metals, on coastal plankton (calanoid copepods, crab zoea, and shrimp megalopes)." Committee: Donald McCorquodale, Ph.D., chair, and Steffen Schmidt, Ph.D. Capstone. April 24, 2014.

Charlotte Berry: "Conch population demographics and habitat association near Port Everglades inlet, Florida." Committee: Brian K. Walker, Ph.D., chair; David S. Gilliam, Ph.D.; and Rob Hill, Ph.D. Thesis. April 23, 2014.

Caitlin Brice: "The status of Amazonian manatees (*Trichechus inunguis*) and their habitats in eastern Ecuador." Committee: Caryn Self-Sullivan, Ph.D., chair; Roger Reep, Ph.D.; and Donald McCorquodale, Ph.D. Thesis. April 25, 2014.

Alexandra Campbell: "Prokaryotic diversity of the Broward and Hollywood wastewater outfalls, associated reef tracts, and inlets." Committee: J. V. Lopez, Ph.D., chair; Donald McCorquodale, Ph.D.; and Christopher Sinigalliano, Ph.D. Thesis. April 23, 2014.

Eric Carlson: "A comparison of loggerhead (*Caretta caretta*) sea turtle nesting seasons as affected by the North Atlantic Oscillations, El Nino Southern Oscillation, and Pacific Decadal Oscillation phenomena." Committee: Curtis M. Burney, Ph.D., chair, and Derek Burkholder, Ph.D. Capstone. March 26, 2014.

Cayla Dean: "Biophysical interactions contributing to mixing of oil in the Straits of Florida: Turbulent mixing due to diel vertical migrations of zooplankton." Committee: Alexander Soloviev, Ph.D., chair; Tamara Frank, Ph.D.; and Amy Hirons, Ph.D. Thesis. July 25, 2014.

Allison Durland Donahou: "Loggerhead sea turtle (*Caretta caretta*) hatchling disorientation in Broward Country, Florida." Curtis M. Burney, Ph.D., chair; Donald McCorquodale, Ph.D.; David Kerstetter, Ph.D.; and Lou Fisher, M.S. Thesis. July 28, 2014.

Christina Gabriel: "Evaluating the role of seagrass beds." Committee: Amy Hirons, Ph.D., chair; Richard Spieler, Ph.D.; and David Kerstetter, Ph.D. Thesis. July 28, 2014.

Teagan Gray: "Global population structure, genetic diversity, and demographics of the dusky shark (*Carcharhinus obscurus*) based on nuclear microsatellite DNA analysis, and geographic sourcing of shark fins from commercial markets." Committee: Mahmood Shivji, Ph.D., chair; George Duncan, Ph.D.; and Brad Wetherbee, Ph.D. Thesis. July 25, 2014.

Victoria Klima: "Factors affecting the continued decline of Alewife and Blueback herring, *Alosa pseudoharengus* and *A. aestivalis*, in the benobscot river, main and the effectiveness of conservation efforts." Committee: Donald McCorquodale, Ph.D., chair, and David Kerstetter, Ph.D. Capstone. March 25, 2014.

Nicholas Ledra: "Delineation of water masses in the Caribbean Sea, Gulf of Mexico, and Mediterranean Sea using stable isotope ratios." Committee: Amy Hirons, Ph.D., chair; Curtis M. Burney, Ph.D.; and Jason Gershman, Ph.D. Capstone. April 25, 2014.

Alexandra Lee: "Evolutionary perspectives on chemical defense in nudibranch gastropods (*Mollusca: Opisthobranchia*)." Committee: Michael Ghiselin, Ph.D., chair, and Charles Messing, Ph.D. Capstone. July 24, 2014.

Shawn Martin: "An evaluation of inclusion criteria for highly migratory species in the Magnuson-Stevens Fishery Conservation and Management Act." Committee: David Kerstetter, Ph.D., chair; James Thomas, Ph.D.; and Donald McCorquodale, Ph.D. Thesis. April 24, 2014.

John McDermond: "Reproduction, distribution, and population environment of *Porites divaricata* in the Florida Keys: Rodriguez Key." Committee: Joshua Feingold, Ph.D., chair; Kevin Helmle, Ph.D.; Nicole Fogarty, Ph.D.; and Susan Colley, M.S. Thesis. July 22, 2014.

Travis Allan Moore: "Trophic dynamics and feeding ecology of the Southeast Florida coastal pelagic fish community." Committee: David Kerstetter, Ph.D., chair; Amy Hirons, Ph.D.; and Robert E. Hueter, Ph.D. Thesis. March 31, 2014.

Rebecca Mulheron: "Microbial community assemblages found with sponge orange band disease in *Xestospongia muta* (Large barrel sponge)." Committee: Jose Lopez, Ph.D., chair; David Gilliam, Ph.D.; and Aurelien Tartar, Ph.D. Thesis. July 31, 2014.

Scott Riley: "Measuring viability of the red-tide dinoflagellate *Lingulodinium polyedra*; treatment with ultraviolet (UV) light." Committee: Clarice Yentsch, Ph.D., chair; Jose Lopez, Ph.D.; and Matt First, Ph.D. Thesis. March 24, 2014.

Theresa Robitaille: "A long-term stony coral transplantation success offshore Southeast Florida, USA." Committee: David Gilliam, Ph.D., chair; Patrick Hardigan, Ph.D.; Richard Spieler, Ph.D.; and Jamie Monty, M.S. Thesis. July 24, 2014.

Elizabeth Schneble: "A review of reproductive behavior of the sand tiger shark (*Carcharias taurus*) with special emphasis on captive sharks at the National Aquarium, Baltimore." Committee: Brad Wetherbee, Ph.D., chair; Mahmood Shivji, Ph.D.; and Alan Hanningsen. Capstone. July 31, 2014.

Clark Schoonover: "Persistent heavy metal pollution from anthropogenic practices in emerging market economies." Committee: Donald McCorquodale, Ph.D., chair, and James Thomas, Ph.D. Capstone. March 25, 2014.

Elizabeth Simpson: "The potential use of artificial reefs within marine protected areas to enhance fisheries and MPA effectiveness." Committee: Paul Arena, Ph.D., chair; Richard Spieler, Ph.D.; and Nicholas Funicelli, Ph.D. Capstone. March 24, 2014.

Kristina Trotta: "Socioeconomics of the Lionfish Derby Fishery." Committee: David Kerstetter, Ph.D., chair; Donald McCorquodale, Ph.D.; Bernhard Riegl, Ph.D.; and Brad Gentner, M.S. Thesis. August 1, 2014.

Tiffany Weidner: "Combined gut content-stable isotope trophic analysis and satellite tagging of the pelagic stingray (*Pteroplatytrygon violacea*) from the western North Atlantic Ocean." Committee: David Kerstetter, Ph.D., chair; Amy Hirons, Ph.D.; and Charles Cotton, Ph.D. Thesis. April 25, 2014.

Christiana Wittmaack: "Establishing behavioral diagnostic criteria for domoic acid toxicosis in *Zalophus californianus*, a sentinel species of ocean health." Committee: Caryn Self-Sullivan, Ph.D., chair; Curtis M. Burney, Ph.D.; and Garet Lahvis, Ph.D. Thesis. April 21, 2014.

Michele Zielinski: "False crawls in loggerhead turtles: causation and impacts on nesting success in Broward County, Florida." Committee: Curtis M. Burney, Ph.D., chair; Donald McCorquodale, Ph.D.; and Kurt Rusenko, Ph.D. Thesis. March 21, 2014.

Oceanographic Center Recent Publications 2013–2014 by Faculty Members, Researchers, and Students

***Bernard, A. M.**, A. W. S. Hilsdorf, A. F. Amorim, R. R. Domingues, and **M. S. Shivji**. 2014. "Development and characterization of thirteen microsatellite markers for the longbill spearfish (*Tetrapturus pfluegeri*)." *Conservation Genetics Resources* 6(1):169–171.

Feagans, J. N. and **T. T. Sutton**. 2014. "Ecology of the oceanic rim: pelagic eels as key ecosystem components." *Marine Ecology Progress Series*. 502: 257–266.

Figueiredo, J., A. H. Baird, S. Harii, and S. R. Connolly. 2014. "Increased local retention of reef coral larvae as a result of ocean warming." *Nature Climate Change* 4(6): 498–502.

***Kenkel, C. D.**, C. Sheridan, M. C. Leal, R. Bhagooli, K. D. Castillo, **N. Kurata**, E. McGinty, T. L. Goulet, and M. V. Matz. 2014. "Diagnostic gene expression biomarkers of coral thermal stress." *Molecular Ecology Resources* 14(4): 667–678.

Lapointe, B. E., L. E. West, **T. T. Sutton**, and C. Hu. 2014. Nutrient excretions by symbiotic fishes support enhanced productivity of pelagic *Sargassum* in the western North Atlantic Ocean. *Journal of Experimental Marine Biology and Ecology* 458: 45–56.

Luo, S.-J., Y. Zhang, W. E. Johnson, L. Miao, P. Martelli, A. Antunes, J. L. D. Smith, and **S. J. O'Brien**. 2014. "Sympatric Asian felid phylogeography reveals a major Indochinese–Sundaic divergence." *Molecular Ecology* 23(8): 2072–2092.

Mengerink, K. J., C. L. Van Dover, J. Ardron, M. Baker, E. Escobar-Briones, K. Gjerde, J. A. Koslow, E. Ramirez-Llodra, A. Lara-Lopez, D. Squires, **T. T. Sutton**, A. K. Sweetman, and L. A. Levin. 2014. "A Call for Deep-Ocean Stewardship." *Science* 344(6185): 696–698.

Sutton, T. T., T. B. Letessier, and B. Bardarson. 2013. "Midwater fishes collected in the vicinity of the Sub-Polar Front, Mid-North Atlantic Ocean, during ECOMAR pelagic sampling." *Deep Sea Research Part II: Topical Studies in Oceanography* 98, Part B(0): 292–300.

Vaudo, J. J., B. M. Wetherbee, G. Harvey, R. S. Nemeth, C. Aming, N. Burnie, L. A. Howey-Jordan, and **M. S. Shivji**. 2014. "Intraspecific variation in vertical habitat use by tiger sharks (*Galeocerdo cuvier*) in the western North Atlantic." *Ecology and Evolution* 4(10): 1768–1786.

*indicates OC student as an author



NOVA SOUTHEASTERN UNIVERSITY
Oceanographic Center
8000 North Ocean Drive
Dania Beach, Florida 33004-3078

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